## UNITED STATES PATENT AND TRADEMARK OFFICE

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| 09/464,076 | 12/16/1999 | BRIAN CRUICKSHANK | 91436-209 | 7105 |

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| EXAMINER |
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| HAN, QI |

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| 2654 | |

DATE MAILED: 01/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

| | Application No. | | Applicant(s) | |
|---|---|---|---|---|
| **Office Action Summary** | 09/464,076 | | CRUICKSHANK, BRIAN | |
| | Examiner | | Art Unit | |
| | Qi Han | | 2654 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☐ Responsive to communication(s) filed on _____ .

2a) ☒ This action is **FINAL**.     2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) _1-12 and 14-18_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1-12 and 14-18_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All  b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____ .

## DETAILED ACTION

### *Response to Amendment*

1.     This communication is responsive to the applicant's amendment dated 10/30/2002.

Applicant cancels claim 13 and adds new claims 15-18. The new added claims are moot in view

of the new ground(s) of rejection.

### *Response to Arguments*

2.     Applicant's arguments filed on 10/30/2002 have been fully considered, but they are not

persuasive.

Regarding the objections (amendment, page 10, last two paragraphs):

a.     Applicant's request for later submitting a new formal drawing (Fig. 2) for the

correction is acknowledged.

b.     Regarding the objections for use of "text to speech", The examiner agrees with

applicant's argument that "This term is clear, as evidenced by the examiner's

understanding of the term, as well as by the common use of this term in other issued US

patents - see, US Patent No. 5,774,854 (as cited in the Office Action) (using the term

"text to speech" throughout the specification and claims)." However, the examiner has

more words to explain for the position of the objection and the suggestion of the

substitution, as following:

A.     The suggestion to substitute "text to speech" with "text-to-speech" is

because the phrase of "text to speech" in a context of sentences may be grammatically

unclear and may cause grammatical ambiguity; for example, an automatic translation machine for the patent application system may raise grammatical error warnings in a context of "the processor connects to the text to speech engines", while no error at all for "text-to-speech".

B.      Another reason to substitute "text to speech" with "text-to-speech" is that some searching engine (including some searching tools in US Patent Office) skips the insignificant words "the", "a", "of", "to" or the like, so using "text-to-speech" is more efficient than "text to speech".

Therefore, substituting "text to speech" with "text-to-speech" can reduce possible ambiguity or error and increase searching accuracy and efficiency, and with similar manner for other phrases, like "speech to text". At this point, the applicant's cooperation is requested.

3.      Regarding "REJECTION UNDER 35 U.S. C. § 102" (amendment, page 10):

a.      The applicants argues that:

"The Office Action argues, without any specific reference to passages in the cited reference, that Sharman discloses each and every element of Applicant's invention, as claimed in Claim 6" (amendment, page 10, paragraph 3).

In fact, the Office Action specifically gives the components number of the prior art in the rejection for claim 6; for example, the referenced numbers 310 (Fig. 3), 315 and 320 regarding claim 6 (Office Action, pages 6-7) are clearly referred to the same referenced numbers on the specification of the prior art, which corresponds to column 4,

line 66 to column 5, line 7, column 5, lines 8-17, and column 5, lines 18-29, respectively.

The Office Action also gives a drawing number with the component number when a

group of component numbers appears first time or changes the referenced drawing; for

example, the referenced numbers 310 (Fig. 3) has the same referenced number in the

drawing figure 3. Further, the referenced component numbers in the prior art are printed

with bold font and described in increasing order, and each referenced number has only

one place in the specification to be described, so that ordinary people would easily locate

the corresponding position.

b.      The applicants also argues that:

"Applicant respectfully submits that the Office Action mischaracterizes the

disclosure of Sharman. Specifically, Sharman discloses that words are broken down into

their constituent syllables, and the syllables are then broken down into constituents

phonemes, with the output being a sequence of phonemes. Sharman, Col. 5, lines 18-42.

Thus, Sharman operates at the syllable level with phonemes (and diphones). In contrast,

Applicant's invention (in claim 6) parses the text file into textual units - a textual unit

being either a word, prefix, or suffix. Upon parsing, if the textual unit corresponds to a

textual unit in a vocabulary of textual units, then the textual unit is added to a list.

Therefore, Shaman fails to disclose parsing the text into textual units where each parsed

textual unit is a word, prefix or suffix, such that if such textual unit corresponds to a

stored textual unit, the stored textual unit is added to a list."

The examiner notices that the applicant processes text content only in

word/prefix/suffix level, while the prior art reference can be broken down into syllable

level process. However, the prior art disclosure satisfies all the limitations that read on

the claim 6. Particularly, the prior art cites that "the processing then splits into two

branches, essentially one concerned with individual words, the other with larger

grammatical effects (prosody). Discussing the former branch first, this includes a

component 320 (SYL) which is responsible for breaking words down into their

constituent syllables. Normally this is done using a dictionary look-up, although it is also

useful to include some back-up mechanism to be able to process words that are not in the

dictionary. This is often done for example by removing any possible prefix or suffix, to

see if the word is related to one that is already in the dictionary (and so presumably can

be disaggregated into syllables in an analogous manner)." (Sharman, column 5, lines 18-

29). This clearly discloses a way for parsing a prefix, suffix or word. Further, the

detailed level disclosure, such as syllable level, does not block or exclude the capability

for the higher level application. In contrast, the prior art teaches that processing

prefix/suffix/word and processing syllable have "an analogous manner" (column 5, lines

28-29). Furthermore, the prior art discloses removing "possible prefix or suffix, to see if

the word is related to one that is already in the dictionary" (column 5, lines 26-28), and

using buffer for storing multi-stage input and output (column 7, lines 61-67) in that the

input/output unit representing the size of the text unit is depends on the process of each

stage (column 6, line 61 to column 7, line 22), which inherently includes a sequence of

units for the stage of parsing prefix/suffix/word and corresponds to the claimed "if such

textual unit corresponds to a stored textual unit, the stored textual unit is added to a list."

4.    Regarding "REJECTION UNDER 35 U.S. C. § 103" (amendment, start at page 11):

a.       With respect to claims 7-8 (which depend from claim 6), the applicants argues
that:

"As clearly set forth above in Applicant's remarks regarding Claim 6, Sharman
does not disclose everything claimed in Claim 6. To reiterate, Sharman fails to disclose
parsing the text into textual units where each parsed textual unit is a word, prefix or
suffix, such that if such textual unit corresponds to a stored textual unit, the stored textual
unit is added to a list", (which has been stated above, in section 3, item b).

"Applicant respectfully traverses the Office Action official notice that it is well
known in the art to mark a text unit for further processing. Applicant's textual units are
prefixes, suffixes and words in the art of text to speech processing, and it is unclear from
the Office Action what is meant by the Office Action's "official notice" regarding the
terms "mark", "text units" and "further processing" - as those terms are used by the Office
Action in an abstract sense. Moreover, Applicant's Claims include the feature that "if said
one of said parsed textual units does not correspond to one of said stored textual units"
then the textual unit is marked (Claims 7-8). The Office Action fails to address this
feature."

As stated in the Office Action, Sharman discloses that apart from using a
dictionary look-up, "it is useful to include some back-up mechanism to be able to process
words that are not in the dictionary" (column 5, lines 24-26), which is corresponding to
the claimed "if said one of said parsed textual units does not correspond to one of said
stored textual units" and "as being out of vocabulary." In the official notice, the term

"text unit" may reference an output or input unit in a TTS processing stage, disclosed by

Sharman. Sharman cites that "the output unit represents the size of the text unit (e.g.

word, sentence, phoneme); for many stages this is accompanied by additional information

for that unit (e.g., duration, part of speech etc.)" (column 6, line 59 to column 7, line 2),

which suggests that the text unit may be different in each of processing stages. The term

"mark" in the official notice is interpreted as common meaning in computer art as an

action to mark "a symbol or other device used to distinguish one item from others like it"

(Microsoft Press Computer Dictionary, page 298), for example, appending a character

symbol "$" to a digit string for distinguishing monetary amount from normal number

(O'Donnell, page 49, table 2.11), therefore, it would have been obvious to one of the

ordinary skill in the art at time invention was made to add a character in front of the text

units to indicate that the text units are not in the dictionary in a process stage (as stated

above, in section 3, item b.), which corresponds to the claim "marking said parse textual

unit as be out of vocabulary". Furthermore, the term "further processing" references the

processes after marking, disclosed by Sharman, such as processing in a back-up

mechanism, generating phonemes, coping with prosodic information (Sharman, column

5, lines 25-26, column 5, lines 30-56 and column 5, lines 26).

Therefore, the examiner believes that the applicant's arguments for the

obviousness of claims 7-8 are not persuasive.

b.      With respect to independent claim 1 (and dependent claims 2-5) the applicant

argues that:

"Sharman fails to disclose receiving textual units where each textual unit is one of a word, prefix or suffix, and for each textual unit locating an associated speech sample in memory. It appears that the Office Action understands that Sharman operates on syllables, and such syllables are converted into phonemes." This has been responded above, in section 3, item b.

The applicant continuously argues that "Similarly, Busardo fails to disclose, suggest or teach textual units where each textual unit is one of a word, prefix or suffix. In contrast, Busardo operates on allophones, which are subsets of phonemes. Col. 1, lines 51-58."

Firstly, when combining Sharman with Busardo that discloses a voice talent, Busardo does not have to disclose the limitation related to a prefix, suffix or word process, because Sharman has already done it as stated above in section 3, item b. Secondly, Busardo cites that "the operator provides a phonetic transcription of the word" and "the audio allophone files are concatenated and stored as a new word" (column 2, lines 35-44), which suggests that Busardo's invention has a word level process that may satisfy the limitation "each said textual unit is one of a word, a prefix, or a suffix" alone as claimed, although more detailed level process has been disclosed. In addition, Sharman also discloses a word level process for prosodic information (column 5, lines 48-55). Therefore, it would have been obvious to one of the ordinary skill in the art at time invention was made to modify Sharman by providing a voice talent, as taught by Busardo, for the propose of producing better sound and speeding up operation.

c.      With respect to the claims 9-12 and 14, for the same reasons set forth above with

respect claims 1 and 6, the examiner believes that the applicant's arguments are not

persuasive.

## *Specification*

5.      The disclosure is objected to because of the following informalities:

Changing phrase "text to speech engine (or system)" (for example on page 1, line 11 and

line 20) to "text-to-speech engine (or system)" in the application would be necessary for the

purpose of clear specification.  Appropriate correction is required.

## *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6.      Claim 6 is rejected under 35 U.S.C. 102(b) as being anticipated by Sharman.

Regarding **claim 6**, Sharman discloses a text to speech system.  Sharman further

discloses a linguistic processor for various linguistic processes comprising: text tokenisation

preprocessing 310 (Fig. 3) to split input text into tokens (words), word conversion 315 to

implement special rules to map lexical items into canonical word form, such as convert numbers

to word strings and expand acronyms and abbreviations, syllabication 320 to look up and match

the words using a dictionary and to remove any possible prefix or suffix for a word and to brake

a word down into constituent syllables –syllabified word (equivalent to list of textual unit) for

further processing, which corresponds to the claimed "a method of pre-processing a text file

comprising: receiving a text file; parsing said text file into textual units, where each said parsed

textual unit is one of a word, a prefix or a suffix; and for each one of said parsed textual units, if

said one of said parsed textual units corresponds to a stored textual unit in a vocabulary of

textual units, adding said stored textual unit to a list."

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

7.      Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sharman in view

of Microsoft Press ("Computer Dictionary", page 298) hereinafter referenced as R1.

Regarding **claim 7**, Sharman discloses everything claimed, as applied above (see claim

6). Sharman particularly discloses that apart from using a dictionary look-up, "it is useful to

include some back-up mechanism to be able to process words that are not in the dictionary"

(column 5, lines 24-26), which is corresponding to the claimed "if said one of said parsed textual

units does not correspond to one of said stored textual units" and "as being out of vocabulary."

Sharman further cites that "the output unit represents the size of the text unit (e.g. word,

sentence, phoneme); for many stages this is accompanied by additional information for that unit

(e.g., duration, part of speech etc.)" (column 6, line 59 to column 7, line 2), which suggests that the text unit may be different in each of processing stages. But, Sharman fails to explicitly disclose to mark a text unit that does not match the one either in dictionary or by rule sets. However, the examiner contends that the concept of marking a text unit data was well known, as taught by R1.

R1 is a popular computer dictionary that gives common meaning and explanation of words or phrases in computer related arts. R1 further discloses that one of the common meanings of the word "mark" is "in applications and data storage, a symbol or other device used to distinguish one item from others like it" (page 298, entry "mark"), so that when using "mark" as a verb, it can be interpreted as an action to mark a symbol for certain data in a data storage, such as used for "text unit", for distinguishing the data from other data.

Therefore, it would have been obvious to one of ordinary skill in the art at time the invention was made to modify Sharman by specifically marking a text unit of the processed data, as taught by R1, for the purpose of distinguishing the text unit that is not in the dictionary and preparing for further processing stages, such as processing in a back-up mechanism, generating phonemes, coping with prosodic information (Sharman, column 5, lines 25-26, column 5, lines 30-56 and column 5, lines 26).

Regarding **claim 16** (new), Sharman and R1 disclose everything claimed, as applied above (see claim 7). Sharman further suggests that: (i) at substring level, it is useful to include some back-up mechanism to be able to process words that are not in the dictionary (column 5, line 24); (ii) at phoneme level, it is again using a dictionary look-up table, augmented with general purpose rules for words not in the dictionary (column 5, line 34); which is equivalent to

use "secondary text to speech engine". Further more, Sharman discloses that the buffer may be

used for storing multi-stage input and output (column 7, lines 61-67) for different text units

depending on the process stage (column 6, line 61 to column 7, line 22), which inherently

includes process stage(s) in secondary TTS engine.   This corresponds to the claimed "passing

said marked textual unit to a secondary text to speech engine, receiving a speech sample

converted from said marked textual unit from said secondary text to speech engine, and

appending said converted speech sample to said output signal."

8.      Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sharman in view

of R1 and further in view of O'Donnell ("programming for the world--a guide to

internationalization", ISBN 0-13-722190-8).

Regarding **claim 8**, Sharman and R1 disclose everything claimed, as applied above (see

claim 7). But, Sharman and R1 fail to disclose that "said marking comprises pre-pending a

character to said textual unit." However, the examiner contends that the concept of marking a

text unit by using a pre-pending character was well known, as taught by O'Donnell.

O'Donnell writes a book of "programming for the world", which discloses that appending

a character symbol "$" to a digit string for distinguishing monetary amount from normal number

(page 49, table 2.11).

Therefore, it would have been obvious to one of ordinary skill in the art at time the

invention was made to modify Sharman and R1 by specifically marking a text unit of the

processed data by adding a character, such as "$" or the like, in front of the text units, as taught

by O'Donnell, for the purpose of easily distinguishing the text units and preparing for further

processing.

Regarding **claim 17** (new), Sharman, R1 and O'Donnell disclose everything claimed, as

applied above (see claim 8). Sharman further suggests that: (i) at substring level, it is useful to

include some back-up mechanism to be able to process words that are not in the dictionary

(column 5, line 24); (ii) at phoneme level, it is again using a dictionary look-up table, augmented

with general purpose rules for words not in the dictionary (column 5, line 34); which is

equivalent to use "secondary text to speech engine". Further more, Sharman discloses that the

buffer may be used for storing multi-stage input and output (column 7, lines 61-67) for different

text units depending on the process stage (column 6, line 61 to column 7, line 22), which

inherently includes process stage(s) in secondary TTS engine. This corresponds to the claimed

"passing said marked textual unit to a secondary text to speech engine; receiving a speech

sample converted from said marked textual unit from said secondary text to speech engine; and

appending said converted speech sample to said output signal."

9.      Claims 1-5 and 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Sharman (USPN 5,774,854) in view of Busardo (USPN 6,148,285).

Regarding **claim 1**, Sharman discloses a text to speech system comprises:

a) a component 320 (Fig. 3) providing a dictionary look-up to break words down into syllables

(list) by removing any possible prefix or suffix (column 5, lines 22-27), which corresponds to the

claimed "receiving a list of textual units, where each said textual unit is one of a word, a prefix

or a suffix;"

b) components 325,330 and 335 performing phonetic transcription in which the syllabified word

is broken down still further into its constituent phonemes, again using a dictionary look-up table

(column 5, lines 30-33), and an acoustic processor 220 ( Figs. 2 and 4) preparing acoustic data by

using diphone library 420 (Fig.4), which corresponds to the claimed "locating an associated

speech sample in a memory;" and

c) output buffer 590 (Fig. 5) storing result of processing and checking output data sufficiency,

which corresponds to the claimed "pending said associated speech sample to an output signal."

But, Sharman fails to explicitly disclose utilizing "speech sample" for the phonetic data on item

b) above, even though he cites that a diphone library 420 (Fig. 4) effectively contains

prerecorded segments of diphones (column 6, line 25). However, the examiner contends that the

concept of using speech sample as phonetic data was well known, as taught by Busardo.

In the same field of endeavor, Busardo discloses an allophonic text-to-speech generator

in which a voice talent (equivalent to speech sample) records a number of words or phrases that

include all of the audio allophones that correspond to the allophonic text characters for the

purpose of generating a phonetic transcription of the word (column 2, lines 28-38).

Therefore, it would have been obvious to one of ordinary skill in the art at time the

invention was made to modify Sharman by specifically providing a voice talent (speech sample)

for generating phoneme data and diphone data, as taught by Busardo, for the purpose of

producing better sound and speeding up operation.

Regarding **claim 2**, Sharman and Busardo disclose everything claimed, as applied above

(see claim 1). Sharman further suggests that: (i) at substring level, it is useful to include some

back-up mechanism to be able to process words that are not in the dictionary (column 5, line 24);

(ii) at phoneme level, it is again using a dictionary look-up table, augmented with general purpose rules for words not in the dictionary (column 5, line 34); which is equivalent to use "secondary text-to-speech engine". Further more, Sharman discloses that the phoneme data and other portion of data are sent to acoustic processor to produce output data stored in the output buffer (Fig. 5). This corresponds to the claimed "wherein one said textual unit in said list is indicated as not having an associated speech sample in memory and said method further comprises: passing said indicated textual unit to a secondary text to speech engine; receiving a speech sample converted from said indicated textual unit from said secondary text to speech engine; and appending said converted speech sample to said output signal."

Regarding **claim 3**, Sharman and Busardo disclose everything claimed, as applied above (see claim 2). But, Sharman fails to explicitly disclose to provide a secondary text-to-speech engine which comprises a phonetic text-to-speech engine based on a voice talent. However, the examiner contends that the concept of utilizing a phonetic text-to-speech engine based on a voice talent was well known, as taught by Busardo.

Busardo further discloses that a voice talent records a number of words or phrases that include all of the audio allophones that correspond to the allophonic text characters for the purpose of generating a phonetic transcription of the word (column 2, lines 28-38).

Therefore, it would have been obvious to one of ordinary skill in the art at time the invention was made to modify Sharman by specifically providing a phonetic text-to-speech engine based on a voice talent as secondary text-to-speech engine, as taught by Busardo, for the purpose of offering consistent sound with the primary text-to-speech engine.

Regarding **claim 4**, Sharman and Busardo disclose everything claimed, as applied above

(see claim 1). Sharman also discloses that processing input text at the substring level is based on

a syllabified word (column 5, line 31), which inherently satisfies all limitation elements as

claimed "wherein a consecutive plurality of said textual units in said list represent a whole word,

said method further comprising: for each textual unit in said consecutive plurality of said textual

units, locating an associated speech sample in said memory; creating a speech unit by splicing

together said plurality of associated speech samples; and appending said speech unit to said

output signal."

Regarding **claim 5**, Sharman and Busardo disclose everything claimed, as applied above

(see claim 4). Sharman further discloses components of identifying diphones 410 (Fig. 4),

diphone library 420 and diphone concatenation 415 for overcoming audible discontinuities

(column 6, lines 34-40), which corresponds to the claimed "after said splicing, processing said

speech unit to remove discontinuities."

Regarding **claim 9**, it discloses an apparatus, which corresponds to the method of

claim 1; the apparatus is obvious in that it simply provides structure for the functionality

found in claim 1.

Regarding **claim 10**, it discloses an apparatus, which corresponds to the method of

claim 1; the apparatus is obvious in that it simply provides structure for the functionality

found in claim 1. In addition, Sharman specifically discloses that the TTS system includes

two microprocessors (column 3, line 17), which corresponds to the claimed "a text to speech

converter comprising a processor operable to …".

Regarding **claim 11**, it discloses an apparatus, which corresponds to the method of claim

1; the apparatus is obvious in that it simply provides structure for the functionality found in claim

1. In addition, Sharman specifically discloses that an arrangement is particularly suitable for a

workstation (equivalent to computer) equipped with an adapter card with its own DSP

(equivalent to processor) (column 3, line 21), which corresponds to the claimed "a computer

readable medium for providing program control to a processor, said processor included in a text

to speech converter, said computer readable medium adapting said processor to be operable to

...".

Regarding **claim 12**, it discloses an apparatus, which corresponds to a combination of the

method of claim 1 and the method of claim 6; the apparatus is obvious in that it simply provides

structure for the functionality found in claim 1 and claim 6.

Regarding **claim 13**, it discloses a computer data signal in a carrier wave, which is used

in and corresponds to the method of claim 1; the signal is obvious in that it simply provides

transition means for the functionality found in claim 1.

Regarding **claim 14**, it discloses a data structure, which is used in and corresponds to the

method of claim 1; the data structure is obvious in that it simply provides a part of software

structure for the functionality found in claim 1.

Regarding **claim 18** (new), it depends on the claim 12; and it discloses an apparatus,

which corresponds to a combination of the method of claim 7 and the method of claim 16; the

apparatus is obvious in that it simply provides structure for the functionality found in claim 7 and

claim 16.

10.    Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sharman in view

of Busardo, and further in view of Hata et al. (USPN 5,878,393) hereinafter referenced as Hata.

Regarding **claim 15** (new), Sharman and Busardo disclose everything claimed, as applied

above (see claim 14). But, Sharman and Busardo fail to explicitly disclose a data structure

"further comprising a field for a phoneme that said textual unit starts with, and a field for a

phoneme that the textual unit ends with" as claimed. However, the examiner contends that the

concept of utilizing fields for a beginning phoneme and an ending phoneme in a data structure

was well known, as taught by Hata.

In the same field of endeavor, Hata discloses a high quality concatenative reading system.

Hata further discloses that a phonological feature table (an array type of data structure) 52 (Fig.

3), comprising fields of phonemes that a word may begin and end with (column 5, lines 14-31,

and column 7, lines 55-59).

Therefore, it would have been obvious to one of ordinary skill in the art at time the

invention was made to modify Sharman and Busardo by specifically providing fields for a

beginning phoneme and an ending phoneme for existing data structure, as taught by Hata, for the

purpose of obtaining better sound quality.

### *Conclusion*

11.    **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

12.     Any response to this office action should be mailed to:
            Commissioner of Patents and Trademarks,Washington D.C. 20231
        or faxed to:
            (703)-872-9314
        Hand-delivered responses should be brought to:
            Crystal Park II, 2121 Crystal Drive, Arlington. VA. Sixth Floor (Receptionist).

        Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Qi Han whose telephone numbers is (703) 305-5631. The
examiner can normally be reached on Monday through Thursday from 8:00 a.m. to 5:30 p.m. and
Friday from 8:00 a.m. to 12:00 a.m.

        If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, Marsha Banks-Harold, can be reached on (703) 305-4379.

        Any inquiry of a general nature of relating to the status of this application or proceeding
 should be directed to the Technology Center 2600 Customer Service Office  whose telephone
number is (703) 306-0377.

QH/qh
December 30, 2002

*Marsha O Banks-Harold*

MARSHA D. BANKS-HAROLD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600